SWEDISH COAST GUARD
Our mission

The Swedish Coast Guard is working for a sustainable marine environment and improving safety at sea.

We work with:
- Surveillance and monitoring
- Crime prevention
- Environmental response
Organization

- The Swedish Coast Guard has stations at 21 locations along the entire coast of Sweden.
- The management and support functions are situated in Karlskrona, Göteborg, Stockholm, Nyköping and Härnösand.
- One national command centre situated in Göteborg.
- 868 (535) employees.
Maritime Surveillance

The Swedish Coast Guard is commissioned to co-ordinate the civil requirements relating to maritime surveillance and information.
Protecting the environment

• A quick response is important for a successful operation.
• To recover oil at sea is more time- and cost effective than recovering oil after it has reached the shore.
• The Swedish Coast Guard always has ships on stand-by for environmental protection for immediate response.
International co-operation

Extensive international work on the marine environment is being conducted in cooperation

• between the Baltic Sea countries within the Helsinki Commission,
• between the North Sea countries within the Bonn Agreement,
• between the Nordic countries within the Copenhagen Agreement and
• between the Arctic countries through collaboration in the Arctic Council.
Sustainable fishing

- The Swedish Coast Guard works for sustainable fishing and aquaculture.
- Supervises and checks fishery along the entire coast of Sweden.
- Fisheries policy is common throughout the EU.
Increased safety at sea

• The Swedish Coast Guard works to increase people’s safety at sea,
• restrain drunkenness and speeding at sea,
• is responsible for border control at sea and,
• is on permanent standby for search and rescue.
Schengen co-operation

Via active border control, The Swedish Coast Guard contributes to limiting the number of cases of unauthorized entry to the Schengen area.
Detecting and reporting crimes

Together with the Swedish Police, Swedish Customs and other countries, The Swedish Coast Guard fights cross-border crime.
Fire and rescue services

• We assist merchant ships at sea with fire fighting and water supply.
• We assist local fire and rescue services in ports and at islands.
• We help transporting injured or sick people.
Assigned activities

- Diving
- Water sampling
- Towing assignments
Units

A large fleet of vessels and three advanced surveillance aircrafts.

- Patrol boats
- Oil recovery vessels
- Multi-purpose vessels
- Aircrafts
- Hovercrafts
- Smaller boats
- Vehicles
DASH 8 Q-300

KUSTBEVÅKNING

503 COAST GUARD
KBV001-series
KBV312-series
KBV301-series
Oil recovery vessels
Hovercrafts
Strategy for a fossil free fleet

Zero emission by 2045
GOALS

According to the Climate Act and Policy Framework, set by the Swedish Parliament, we should act the following.

• reduce green house gases with 70 % until 2030 compared to 2010.
• have a zero emission fleet latest 2045.
• still be able to act and perform our duties within both the civilian and military defence during crises, increased readiness and war.
Current Situation

Swedish Coast Guard Fleet CO₂ emissions WTW [ton]
Strategy

Policy

Energy efficiency

Fuel

Electrification
Policy work

• Evaluate technical ship specifications and how, when and why we operate our ships.
• Reserve budget funds for environmental related projects.
• Educating the crews and update ship specific manuals and instructions.
Energy Efficiency

- Fossil free heating when alongside in home ports.
- Locked Vessel Systems.
Electrification

- Increased access to shore connections.
- Hybridisation of vessels.
### Selection of Fuel

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Price $/m³</th>
<th>CO₂ Emissions g/MJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mk 1 B0 diesel (free of RME)</td>
<td>672</td>
<td>95.1</td>
</tr>
<tr>
<td>Biodiesel (HVO100)</td>
<td>1979</td>
<td>13.2</td>
</tr>
<tr>
<td>Electro fuel (e-MGO)</td>
<td>?</td>
<td>0</td>
</tr>
</tbody>
</table>


What is behind our strategy?
Our role in crises, increased readiness and war

- Vessels and personnel can be used for surveillance, transports and other task according to an agreement with the Armed Forces.
- For the civilian defence we have fuel reserves for 90 days, but still no sustainable fuels.
Space and Weight

![Graph showing energy density (kWh/m³) vs. energy content (kWh/kg) for various fuels.](image)

- **Högre vikt** (Higher weight)
- **Lättare** (Lighter)
- **Mindre plats-krävande** (Less space-demanding)
- **Mer plats-krävande** (More space-demanding)
## Overview

### A1: Large boats
*e.g. cutters and fast pilot boats.*

### A2: Small boats
*e.g. high speed crafts and RIB boats*

### B: Ships
*e.g. multi-purpose ships (MPV) and icebreakers*

### C: Small ships
*e.g. oil recovery vessels and vessels for hydrography*

### D: Displacing boats
*e.g. short distance pilot boats and short distance transportation*

<table>
<thead>
<tr>
<th>Fuel alternative</th>
<th>Fuel maturity</th>
<th>A1</th>
<th>A2</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel substitute</td>
<td>11,8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methanol</td>
<td>10,0</td>
<td>Range</td>
<td>Space</td>
<td></td>
<td></td>
<td>Range</td>
</tr>
<tr>
<td>Ethanol</td>
<td>10,3</td>
<td>Range</td>
<td>Space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biogas, comp.</td>
<td>11,3</td>
<td>Space</td>
<td>Space</td>
<td>Space</td>
<td>Range</td>
<td>Range</td>
</tr>
<tr>
<td>Biogas, liquid</td>
<td>11,3</td>
<td>Space</td>
<td>Space</td>
<td>Range</td>
<td>Space</td>
<td>Space</td>
</tr>
<tr>
<td>Ammonia</td>
<td>4,5</td>
<td>Space</td>
<td>Space</td>
<td>Range</td>
<td>Range</td>
<td>Space</td>
</tr>
<tr>
<td>Hydrogen, comp.</td>
<td>7,0</td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
<td>Space</td>
<td>Space</td>
</tr>
<tr>
<td>Hydrogen, liquid</td>
<td>7,0</td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
</tr>
<tr>
<td>Electric, battery</td>
<td>11,5</td>
<td>Space</td>
<td>Space</td>
<td>Range</td>
<td>Space</td>
<td>Space</td>
</tr>
<tr>
<td>Diesel electric hybrid</td>
<td></td>
<td>Space</td>
<td>Space</td>
<td>Range</td>
<td>Space</td>
<td>Space</td>
</tr>
</tbody>
</table>

**Ship type**
- A1: Large boats
- A2: Small boats
- B: Ships
- C: Small ships
- D: Displacing boats
KBV001 - Biogas

- Bunkerstation
- Huvudmotorer/Generatoraggregat
- LPG-tankar
- Inertgas-system
- Rör
- Evaporator
- Gas Valve Unit
KBV050 - $H_2$ and FC
KBV312 - Methanol

Räckvidd 42 % av DO-motsv.
Tankvolym x 2.4 för samma räckv.
Thanks!

Contact details:
Jonas Nilsson
Development Engineer within Energy and Environmental Technology
jonas.nilsson@kustbevakningen.se